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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,163	02/13/2001	Akira Kagami	36992.00067	2732

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EXAMINER	
SIDDIQI, MOHAMMAD A	
ART UNIT	**PAPER NUMBER**
2154	3

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/783,163	KAGAMI ET AL.	
	Examiner	Art Unit	
	Mohammad A Siddiqi	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al. (6,658,526) (hereinafter Nguyen) in view of Shank et al. (6,145,028) (hereinafter Shank).

4. As per claim 1, Nguyen discloses a storage management service system, comprising:

a storage on demand (SoD) center system compute (col 1, lines 10-19);

a storage subsystem (col 1, lines 16-18); and

a host computer (fig 1, col 1, lines 52-57), said host computer (fig 1, col 1, lines 52-57), said storage subsystem (col 1, lines 16-18), and said SoD center system computer interconnected by a communications network (fig 1, col 1, lines 52-60); said host computer comprising a software agent (see abstract), said software agent providing an interface between said SoD center system computer and an operating system resident on said host computer (see abstract); and wherein

said SoD center system computer receives input of an SoD demand (col 6, lines 16-19), sends said demand to an SoD resource manager (col 6, lines 16-24), which manages storage resources of said storage subsystem (col 6, lines 16-30); and wherein said SoD resource manager receives said demand from said SoD center system computer (col 6, lines 16-30), and thereupon updates a device management table (col 8, lines 1-20) and in which a current status of at least one of a plurality of resources is recorded (col 8, lines 1-20), and to which said SoD resource manager refers when managing said at least one of a plurality of resources (col 8, lines 1-20), and sends a management result to the SoD center system computer(col 6, lines 16-60); and wherein

said SoD center system computer receives said management result from said SoD resource manager (col 6, lines 33—67), and thereupon stores said management result (col 3, lines 17-59).

Nguyen is silent about the I/0 port management table.

However, Shank discloses an 1/0 port management table (col 8, lines 1-20).

Therefore, it would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

5. As per claim 2, Nguyen discloses demand requires an 1/0 path setting to be updated (col 9, lines 15), said SoD center system computer sends an 1/0 path setting request to said software agent running in said host computer(col 6, lines 16-28);

Nguyen is silent about the said software agent receives said 1/0 path setting request from said SOD center system computer , and thereupon requests said operating system to update an 1/0 path setting table based upon said 1/0 path setting system request, and receives an update result from said operating and thereupon sends a setting result to said SoD center system computer, and wherein said SoD center system computer receives said setting result from said software agent, and thereupon stores said setting result.

However, Shank discloses software agent receives said 1/0 path setting request from said SOD center system computer , and thereupon requests said operating system to update an 1/0 path setting table (col 6, lines 6-15) based upon said 1/0 path setting system request, and receives an update result from said operating and thereupon sends a setting result to said SoD center system computer, and wherein said SoD center system computer receives said setting result from said software agent, and thereupon stores said setting result (fig 5, col 2, lines 13-28).

Therefore, It would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

6. As per claim 3, Nguyen is silent about the host Computer and said storage subsystem are connected directly by physical and logical connections made between at least one of a plurality of host 1/0 controllers and at least one of a plurality of subsystem 1/0 Ports.

However, Shank discloses the host Computer and said storage subsystem are connected directly by physical and logical connections made between at least one of a plurality of host 1/0 controllers and at least one of a plurality of subsystem 1/0 Ports (col 3, lines 35-45).

It would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

7. As per claim 4, Nguyen fails to disclose host computer and said storage subsystem are connected by a network switch between at least one of a plurality of host 1/0 controllers and at least one of a plurality of subsystem 1/0 ports.

However, Shank shows the use of a host computer and said storage subsystem are connected by a network switch between at least one of a plurality of host 1/0 controllers and at least one of a plurality of subsystem 1/0 ports (col 5, lines 5-20)

It would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

8. As per claim 5, Nguyen discloses network switch comprises a fibre channel network switch (fig 1, col 1, lines 52-60).

9. As per claim 6, Nguyen discloses a storage apparatus comprising:

a memory (col 9, lines 25-30);

at least one of a plurality of devices that store information (col 8, lines 22-43, information must be stored to manage storage device);

at least one of a plurality of 1/0 ports providing an interface to said at least one of a plurality of devices that store information (col 9, lines 1-10);

a device management table (col 8, lines 15-20), in which a status of said at least one of a plurality of devices that store information is stored (col 8, lines 15-20), and

a storage resource management processor (col 3, lines 16-25); wherein

said storage management processor receives a demand for storage resources(col 1, lines 10-20), and thereupon updates said device management table and sends a management result responsive to said demand for storage resources (col 7, lines 45-67, and col 8, lines 1-20);

Nguyen is silent about an 1/0 port management table, in which a status of said at least one of a plurality of 1/0 ports is stored, said device management table and said 1/0 port management table being disposed in said memory;

wherein updates to at least one of a plurality of paths connecting to storage resources allocated from said at least one of a plurality of devices that store information are automatically defined to an operating system of a user machine by a remotable software agent.

However, Shank shows the use of an 1/0 port management table (see abstract), in which a status (col 4, lines 1-16) of said at least one of a plurality of 1/0 ports is stored (see abstract), said device management table and said 1/0 port management table being disposed in said memory (see abstract).

wherein updates to at least one of a plurality of paths connecting to storage resources allocated from said at least one of a plurality of devices that store information (see abstract) are automatically defined to an operating system of a user machine by a remotable software agent (fig 1, element 102, col 3, lines 10-24).

It would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

10. As per claim 7, Nguyen discloses at least one of a plurality of devices that store information comprising at least one of magnetic disk, an optical disk, a magnetic -optical disk, and a semiconductor memory (fig 1,col 9, lines 25-35).

11. As per claim 8, Nguyen discloses a communications interface to a network, said storage management processor receiving said demand for storage resources over said network (col 3, lines 17-25).

12. As per claim 9, Nguyen discloses a fibre channel switch (fig 1, col 1, lines 52-57), said fibre channel switch providing capability to connect to at least one of a plurality of host computers(fig 1, col 1, lines 52-57).

13. As per claims 10 and 19, Nguyen discloses a method for configuring a host computer to access resources in a remotable storage subsystem, said host computer, said remotable storage subsystem, and a center system computer interconnected by a communication network (fig 2, col 1, lines 15-27), said method comprising:

receiving at said host computer a request from said center system computer(col 6, lines 16–56), said information about resources in said remotable storage subsystem allocated for use by said host computer (col 6, lines 16-56);

receiving an update result from said operating system (col 8, lines 1-20); and

sending a setting result to said center system computer based upon said update result (col 8, lines 1-20).

Nguyen is silent about an 1/0 path setting, 1/0 path setting request comprising, requesting an operating system resident in said host computer to update an 1/0 path setting table based upon said 1/0 path setting request.

Shank discloses an 1/0 path setting (see abstract), 1/0 path setting request comprising, requesting an operating system resident in said host computer to update an 1/0 path setting table based upon said 1/0 path setting request (see abstract).

It would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

14. As per claim 11, Nguyen is silent about updating said 1/0 path setting table comprises: storing an indication that a particular 1/0 port in said storage subsystem is accessible to a particular host 1/0 controller.
Shank discloses updating said 1/0 path setting table comprises: storing an indication that a particular 1/0 port in said storage subsystem is accessible to a particular host 1/0 controller (col 6, lines 1-15).

It would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

15. As per claims 12 and 20, Nguyen discloses

receiving at said center system computer an input of a demand for storage resources (col 6, lines 16-24);

determining whether sufficient resources exist in order to meet said demand (col 6, lines 16-35);

sending said demand for storage resources to said storage subsystem, if sufficient resources were determined to exist (col 6, lines 16-50);

receiving from said storage subsystem a management result (col 8, lines 1-20), said management result indicating whether storage resources have been successfully allocated in accordance with said demand (col 8, lines 1-20);

storing said management result (col 8, lines 1-20);

Nguyen specifically does not disclose determining whether said demand includes an 1/0 path setting request;
sending said 1/0 path setting request to said host computer, if said demand included an 1/0 path setting request, receiving said setting result from said host computer; and storing said setting result.
However, Shank discloses sending said 1/0 path setting request to said host computer, if said demand included an 1/0 path setting request, receiving

said setting result from said host computer; and storing said setting result (col 8, lines 1-27).

Therefore, it would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

16. As per claim 13, Nguyen discloses receiving said demand for storage resources at said storage subsystem;

determining whether said demand includes a command to make at least one of a plurality of installed devices available(col 6, lines 16-35);

updating a device management table (col 8, lines 15-20), if said demand includes a command to make at least one of a plurality of installed devices available (col 8, lines 15-20);

Nguyen is silent about the updating an 1/0 port management table; and sending a resource management result to said center computer system.

However, Shank discloses updating an 1/0 port management table(see abstract); and sending a resource management result to said center computer system (col 6, lines 2-42).

Therefore, it would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it

will provide a mechanism to manage, control, and configure pool of devices dynamically.

17. As per claim 14, Nguyen discloses updating a device management table comprises: storing an indication that a particular device is usable (col 8, lines 1-20).

18. As per claim 15, Nguyen is storing an indication that a particular 1/0 port is usable.

However, Shank discloses storing an indication that a particular 1/0 port is usable(col 6, lines 58-67).

Therefore, it would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it will provide a mechanism to manage, control, and configure pool of devices dynamically.

19. As per claim 16, Nguyen discloses receiving at said storage subsystem an 1/0 command to access storage resources from said host computer;

determining whether storage resources requested by said 1/0 command are usable(col 8, lines 1-20);

performing said i/o command, if said storage resources requested by said 1/0 command are usable(col 8, lines 1-20);

otherwise rejecting said 1/0 command; and sending an 1/0 result to said host computer(col 8, lines 1-20).

20. As per claim 17, Nguyen discloses determining whether storage resources requested by said 1/0 command are usable comprises: searching said device management table to determine whether devices requested in said 1/0 command are usable(col 6, lines 16-60).

21. As per claim 18, Nguyen specifically does not discloses determining whether storage resources requested by said 1/10 command are usable further comprises:

searching said 1/0 port management table to determine whether 1/0 ports requested in said 1/0 command are usable and whether devices requested in said 1/0 command are accessible via 1/0 ports requested in said 1/0 command.

However, Shanks discloses searching said 1/0 port management table to determine whether 1/0 ports requested in said 1/0 command are usable and whether devices requested in said 1/0 command are accessible via 1/0 ports requested in said 1/0 command (see abstract and col 8, lines 1-26).

Therefore, it would have been obvious tone of ordinary skill in the art at the time invention was made to combine Shank with Nguyen because it

will provide a mechanism to manage, control, and configure pool of devices dynamically.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 5,832,522 to Bickenstaff et al.

U.S. Patent 5,873,103 to Trede et al.

U.S. Patent 5,574,906 to Morris et al.

U.S. Patent 5,813,017 to Morris et al.

U.S. Patent 5,634,052 to Morris et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad A Siddiqi whose telephone number is (703) 305-0353. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (703) 305-8498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAS

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